

Work Order ID 139526

139526

Page 1

Monday, November 30, 2015 11:45:24 AM

Item ID: D5155-1 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Co-Pilot Collective Head (205)
 Start Date: 11/30/2015 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 11/30/2015 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: MCS Date: DEC 02 2015 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D5155	B

100	Cut blanks as per folio	0.00				4	0		DAS 08 9-89
100									
Bandsaw	Memo	0.00							
Jeaspa Bandsaw	CUT BLANK AT 5.000"								

110		0.00				4	0		DAS 08 9-89
110									
HAAS 5AXIS	Memo	0.00							
HAAS CNC vertical machine #5	MACHINE AS PER DWG & FOLIO FB349/ D5155-1								
	FOLIO REV: <u>AA</u>								
	DWG REV: <u>B</u>								

DO NOT BUFF OR POLISH PART

DEBURR

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Scrap ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Use-as-is ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Large Fab ☐ Composite ☐ Supplier ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 139526***139526***

Page 3

Monday, November 30, 2015 11:45:24 AM

Item ID: D5155-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Co-Pilot Collective Head (205)
Start Date: 11/30/2015 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 11/30/2015 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Identify as per dwg & Stock Location: <u>ST154</u>	0.00							
160									
Packaging	Memo	0.00				<u>4X</u>	<u>DAS</u> <u>28</u> <u>0-33</u>		<u>JAN 08 2016</u>
Packaging									
170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.00							
Quality Control									

ML5 JAN 08 2016

ML5 JAN 08 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER :							

Picklist Print

Monday, November 30, 2015 11:45:24 AM

Page 1

Work Order ID: 139526

139526

Parent Item: D5155-1

D5155-1

Parent Item Name: Co-Pilot Collective Head (205)

Start Date: 11/30/2015

Required Date: 11/30/2015

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV.A NEW ISSUE JFS 14/12/01 VERIFIED BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.750X03.75 0		Purchased	No			100	f	14.0000	0.417	1.75579			
M6061T6B2 750X03 750									**	A.e 15/12/10			
6061-T6 BAR 2.75 X 3.75													

15/12/10

Location

Loc Qty

Loc Code

MAT005

14

→ m127464

2

m133452

12

1.6833 ft

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

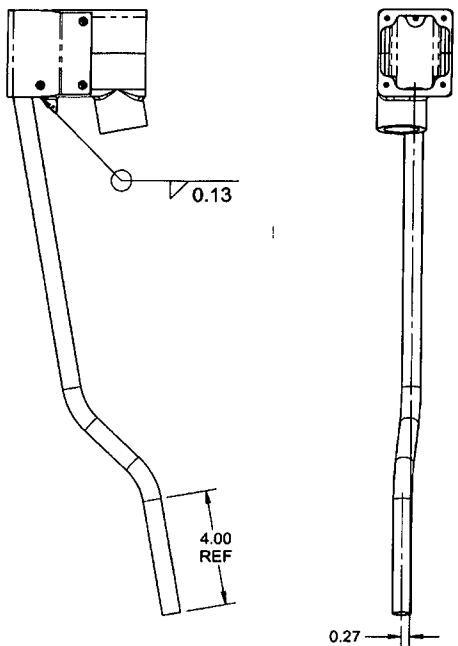
Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified	☐	Past Due	☐				

DART AEROSPACE LTD		Work Order:	139528
Description: Co-Pilot Collective Head (205)		Part Number:	D5155-1
Inspection Dwg: D5155	Rev: B	Page 1 of 2	

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
4.700	+/-0.010	4.697	✓		H-6	31006
2.800	+0.010/-0.000	2.800	✓		"	"
1.75	+/-0.030	1.750	✓		"	"
R0.19	+/-0.030	R0.188	✓		R-6	ref.
2.047	+/-0.010	2.046	✓		H-6	31006
0.35	+/-0.030	0.351	✓		Vern	GA-13
14°	+/-0.5°	14°	✓		Angle M.	CVC-17
Ø0.125 x 0.350	+0.004/-0.001 x +/-0.010	Ø0.126 x 0.358	✓		Vern	GA-13
R0.25	+/-0.030	R0.250	✓		R-6	ref.
1.870	+/-0.010	1.872	✓		H-6	31006
0.227	+/-0.010	0.226	✓		"	"
0.33	+/-0.030	0.326	✓		Vern	GA-13
0.06	+/-0.030	0.061	✓		H-6	31006
0.35	+/-0.030	0.351	✓		Vern	GA-13
2.500	+/-0.010	2.498	✓		H-6	31006
2.21	+/-0.030	2.210	✓		"	"
R0.30	+/-0.030	R0.300	✓		R-6	ref.
0.25	+/-0.030	0.251	✓		Mic	118-120
R0.25	+/-0.030	R0.250	✓		R-6	ref.
1.00	+/-0.030	1.004	✓		H-6	31006
1.100	+/-0.010	1.103	✓		H-6	31006
Ø0.150	+0.005/-0.001	Ø0.153	✓		Vern	GA-13
1.500	+/-0.010	1.502	✓		H-6	31006
1.100	+/-0.010	1.103	✓		"	"
2.500	+/-0.010	2.500	✓		Vern	GA-13
1.31	+/-0.030	1.312	✓		"	"
0.59	+/-0.030	0.592	✓		"	"
R0.25	+/-0.030	R0.250	✓		R-6	ref.
R0.30	+/-0.030	R0.300	✓		"	"
Ø0.150	+0.005/-0.001	Ø0.154	✓		Vern	GA-13
0.300	+/-0.010	0.301	✓		H-6	31006
1.900	+/-0.010	1.900	✓		Vern	GA-13
2.16	+/-0.030	2.162	✓		H-6	31006
0.38	+/-0.030	0.377	✓		"	"
Ø0.160	+0.005/-0.001	Ø0.162	✓		Vern	GA-13
Ø0.500	+0.006/-0.001	Ø0.503	✓		"	"
Ø0.860 x 0.150	+0.010/-0.001 x +/-0.010	Ø0.864 x 0.151	✓		"	"
0.254	+0.005/-0.000	0.255	✓		"	"
0.20	+/-0.030	0.199			"	"

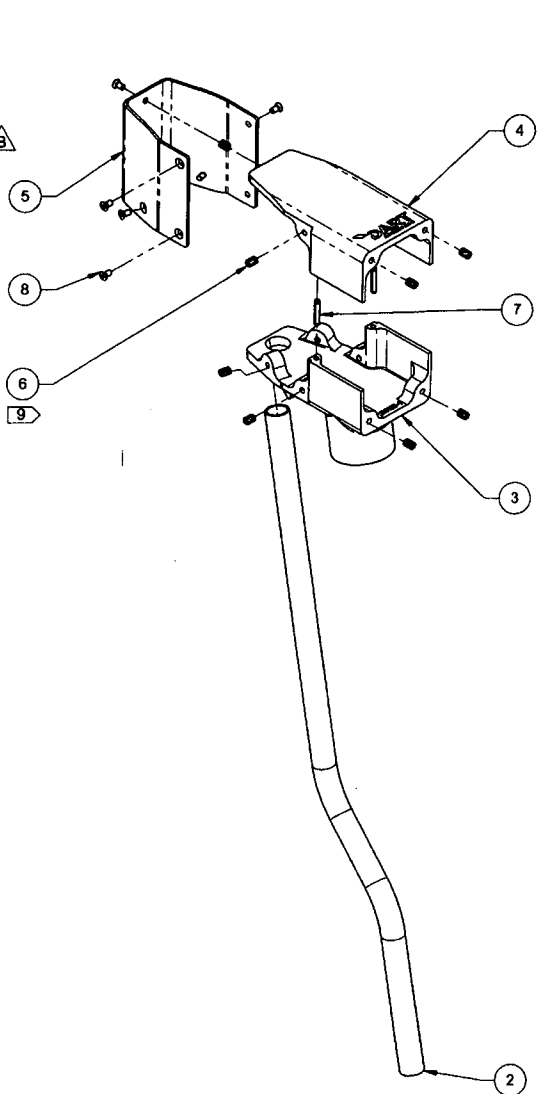
ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-041	CO-PILOT COLLECTIVE HEAD ASSEMBLY (205)
2	1	D4410-7	CONDUIT
3	1	D5155-1	CO-PILOT COLLECTIVE HEAD (205)
4	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5155-9	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100"



D5155-041 WELDING DETAIL

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
 - 7) WEIGHT: 1.08 lbs
 - 8) WELD PER DART QSI 004
 - 9) INSTALL AFTER ANODIZING

D5155-041 CO-PILOT COLLECTIVE HEAD ASSEMBLY (205)



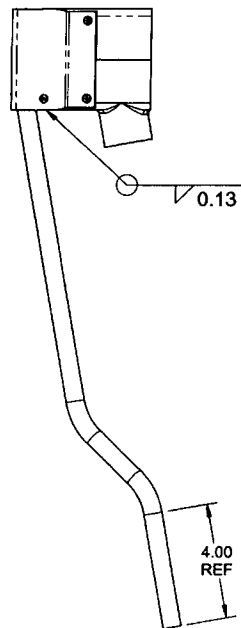
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 139526 MJS
15-12-02

RELEASED
A.P. 2015 JUL 02 RCN 15-577

B	REVISE DIM: ZN D2-7, REVISE NOTE 2, ZN A8-13, A8-14, REVISE LENGTH OF PIN: ZN D6-1, D6-2, D5-3, D6-4, REVISE DEPTH: ZN C7-5, C7-7, C7-9, C7-11, C8-13, C4-14, REVISE DIM: ZN C7-5, C7-7, C7-9, C6-11, B7-13, B7-14, B2-5, B2-7, B2-9, B2-11, C6-13, C4-14, D8-6, D8-8, D8-10, D5-6, D5-8, D5-10, D5-12, B6-7, D7-12, C7-5, C7-7, C7-9, C6-11, D2-13, D2-14	VS	15.05.21
A	NEW ISSUE	VS	14.09.10
REV.	DESCRIPTION	BY	DATE
DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 1 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-043	CO-PILOT COLLECTIVE HEAD ASSEMBLY (212)
2	1	D4410-7	CONDUIT
3	1	D5155-3	CO-PILOT COLLECTIVE HEAD (212)
4	1	D5155-11	CO-PILOT COLLECTIVE HEAD (212)
5	1	D5156-11	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100°

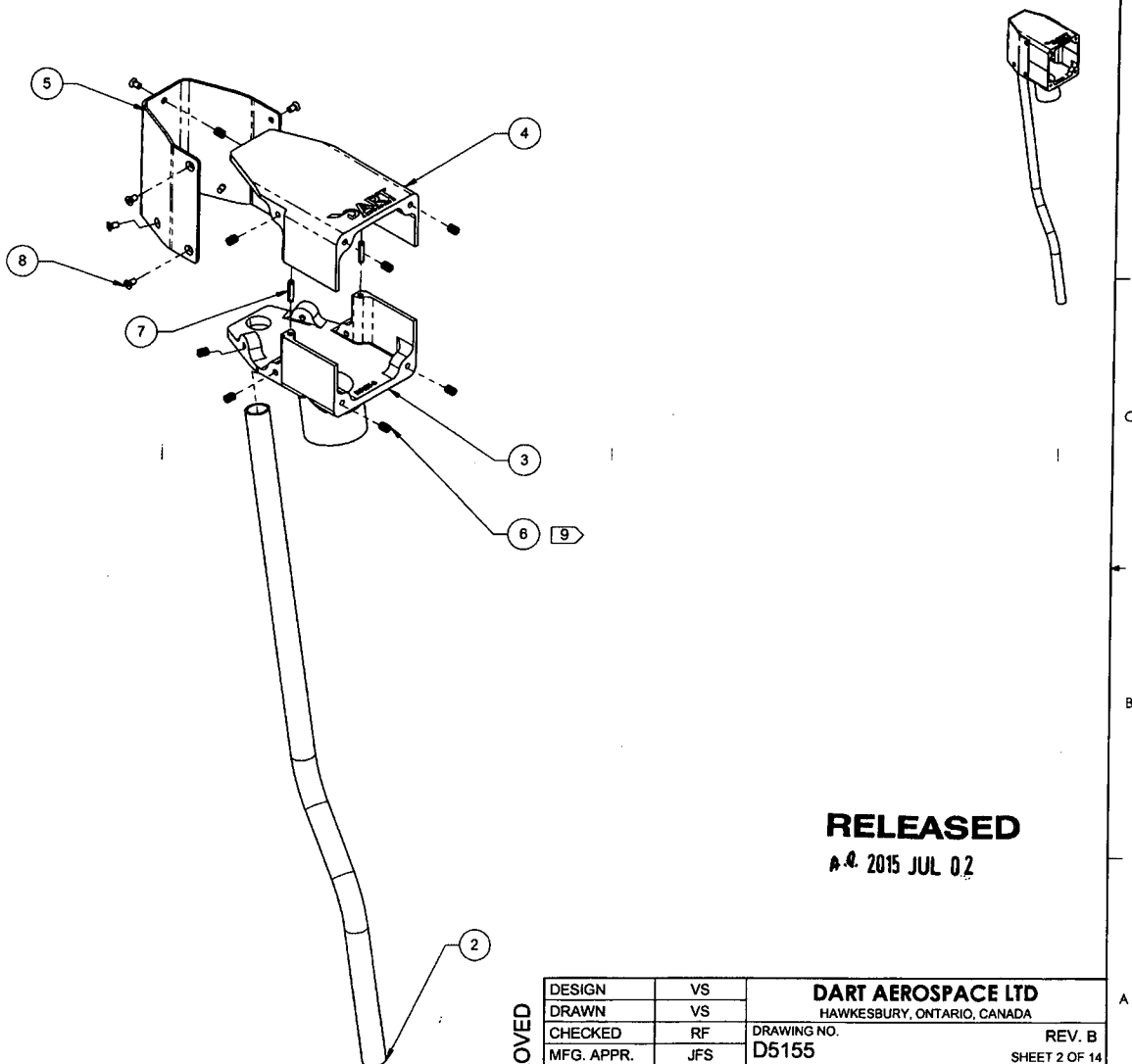


D5155-043 WELDING DETAIL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.20 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

D5155-043 CO-PILOT COLLECTIVE HEAD ASSY (212)



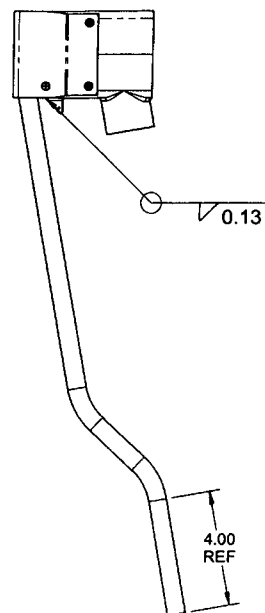
RELEASED

A-0 2015 JUL 02

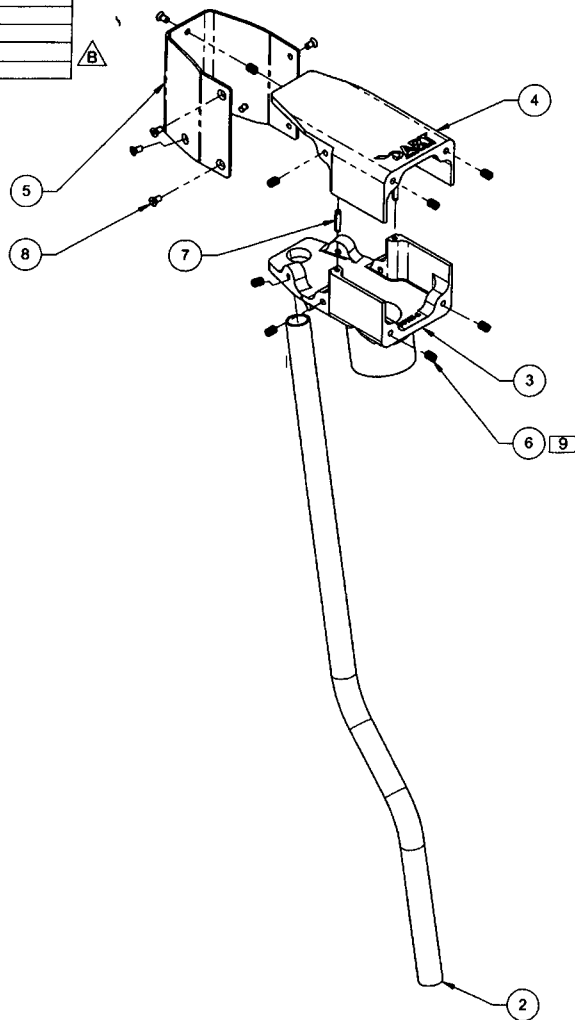
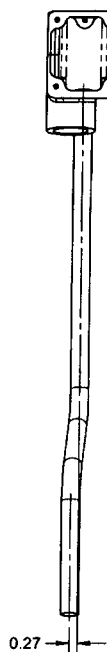
APPROVED

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO. D5155	REV. B
MFG. APPR.	JFS	SHEET 2 OF 14	
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-045	CO-PILOT COLLECTIVE HEAD ASSEMBLY (EAGLE SINGLE)
2	1	D4410-7	CONDUIT
3	1	D5155-5	CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)
4	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5156-9	BACK PLATE
6	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
7	2	MS16562-223	SLOTTED SPRING PIN
8	7	MS24693-24B	SCREW, CSK 100*



D5155-045 WELDING DETAIL



NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.06 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

D5155-045 CO-PILOT COLLECTIVE HEAD ASSY (EAGLE SINGLE)

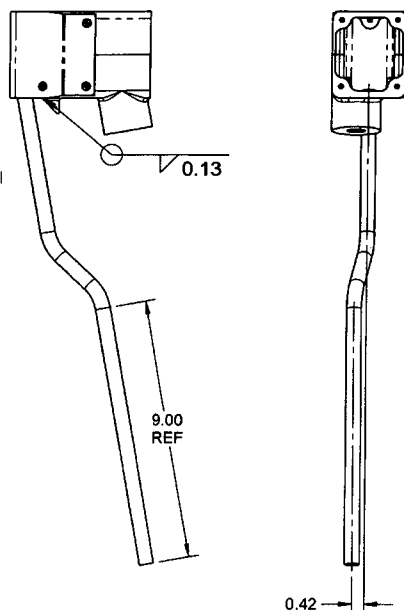
RELEASED

A-E 2015 JUL 02

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO. D5155	REV. B
MFG. APPR.	JFS		SHEET 3 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR EQUIPED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

ITEM	QTY	P/N	DESCRIPTION
1	X	D5155-047	CO-PILOT COLLECTIVE HEAD ASSEMBLY
2	1	D5054-1	CONDUIT
3	2	D5073-1	SNAP RING
4	1	D5155-7	CO-PILOT COLLECTIVE HEAD (205)
5	1	D5155-9	CO-PILOT COLLECTIVE HEAD (205)
6	1	D5156-9	BACK PLATE
7	11	90296A108	HELI-COIL INSERT (6-32 X 0.276)
8	2	MS16562-223	SLOTTED SPRING PIN
9	7	MS24693-24B	SCREW, CSK 100*
10	1	MS27641-3	BEARING

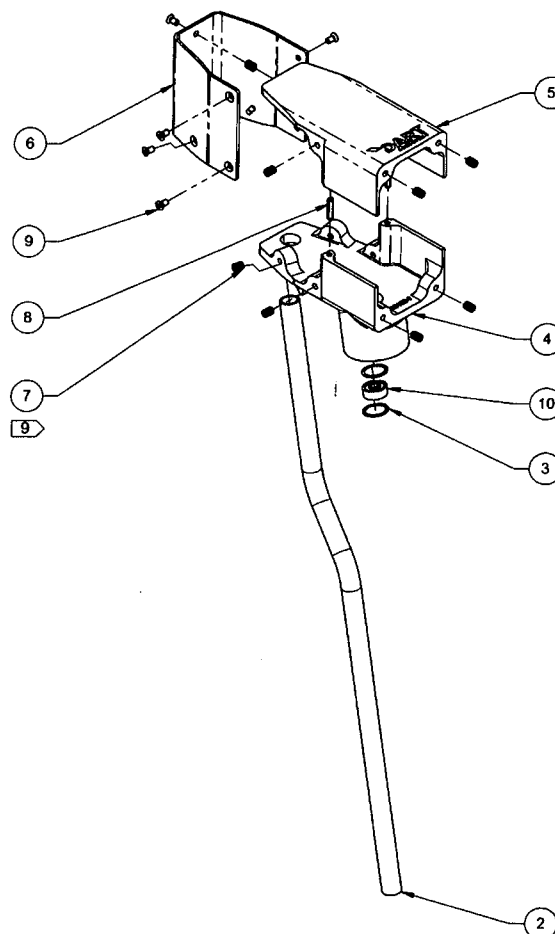


D5155-047 WELDING DETAIL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II OR IIB CLASS 2 AFTER WELDING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.14 lbs
- 8) WELD PER DART QSI 004
- 9) INSTALL AFTER ANODIZING

**D5155-047 CO-PILOT COLLECTIVE HEAD ASSY
FOR 205 WITH 204-001-290-5 STICK AND THROTTLE ASSEMBLY INSTALLED**

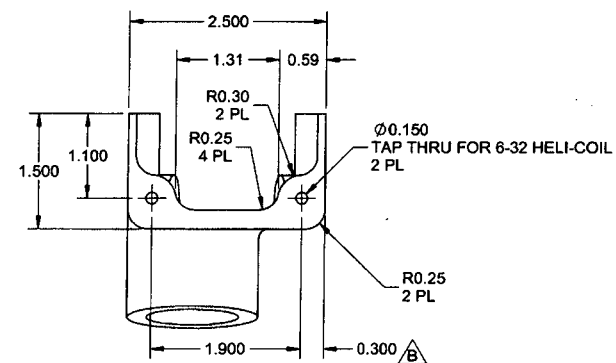
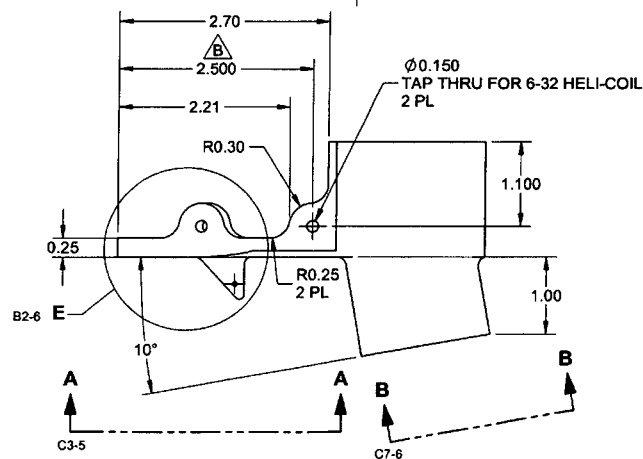
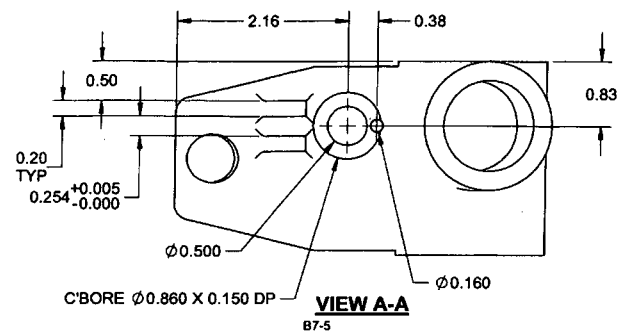
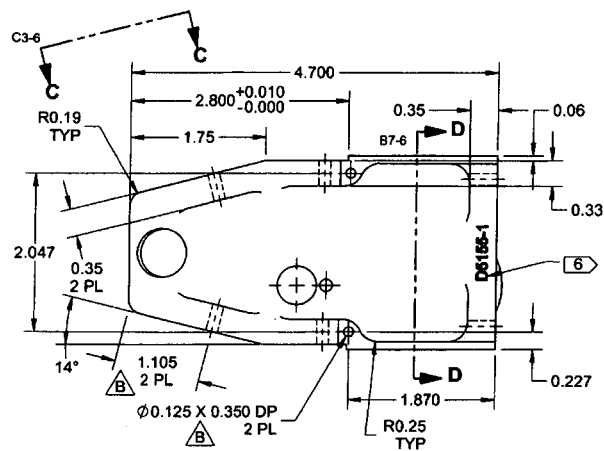


RELEASED

A-9 2015 JUL 02

APPROVED

DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 4 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



RELEASED

0.0. 2015 JUL 02

NOTES:

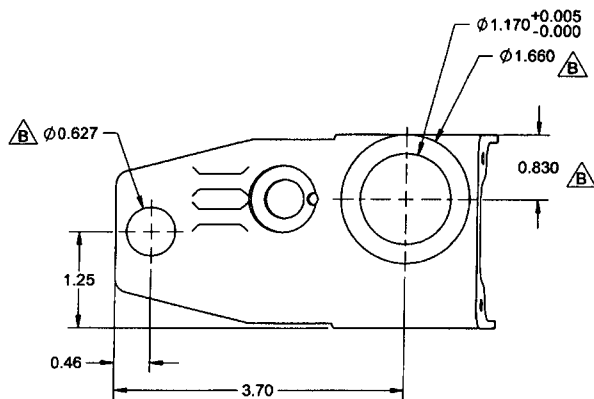
- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.47 lbs
- 8) UNDIMENSIONED FEATURES ARE DEFINED BY D5155-1.SLDPRT

D5155-1 CO-PILOT COLLECTIVE HEAD (205)

APPROVED

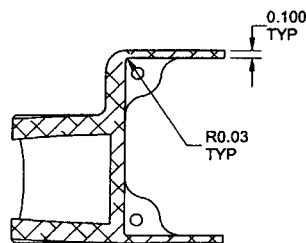
DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO. D5155	REV. B
MFG. APPR.	JFS	SHEET 5 OF 14	
APPROVED	HS	SCALE	
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	
DATE	15.05.21	NTS	

COPYRIGHT © 2013 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
WRITTEN PERMISSION FROM DART AEROSPACE LTD.



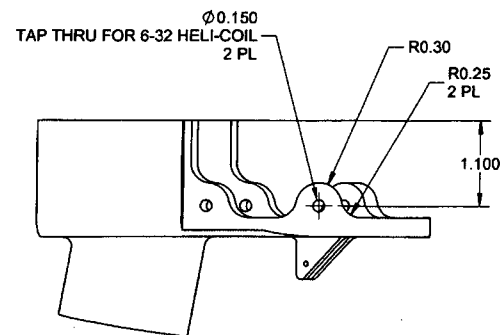
VIEW B-B

B5-5



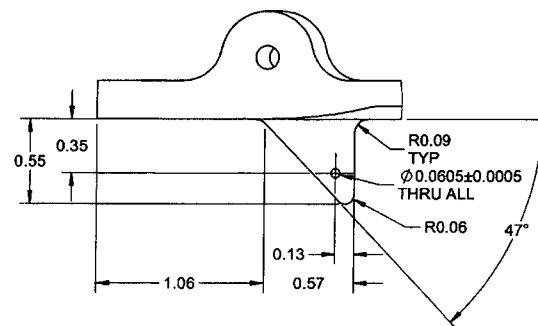
SECTION D-D

D6-5



VIEW C-C

D7-5



DETAIL E

B7-5

RELEASED

A.E. 2015 JUL 02

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

**D5155-1 CO-PILOT COLLECTIVE HEAD (205)
DETAIL VIEWS**

APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	VS		
	CHECKED	RF	DRAWING NO.	REV. B
	MFG. APPR.	JFS	D5155	SHEET 6 OF 14
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS-#	CO-PILOT COLLECTIVE HEAD	NTS
DATE		15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

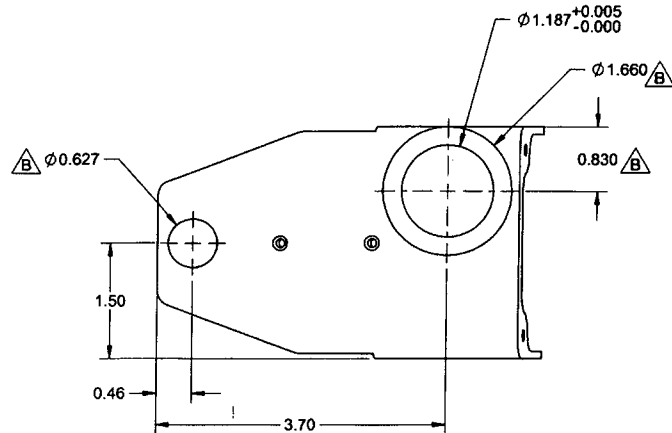
8 7 6 5 4 3 2 1

D

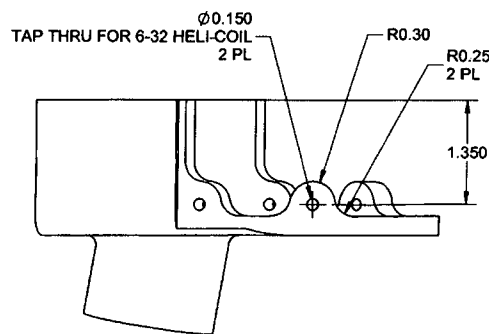
C

B

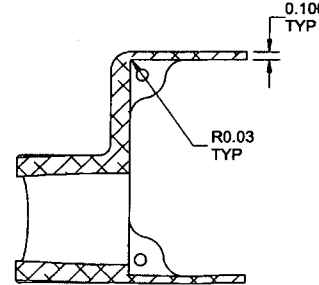
A



VIEW G-G
B6-7



VIEW H-H
D7-7



SECTION I-I
D6-7

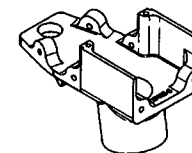
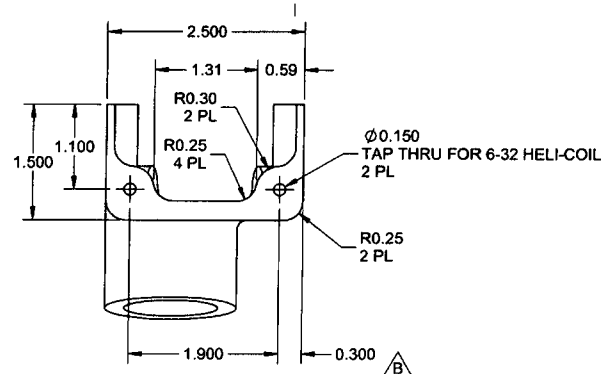
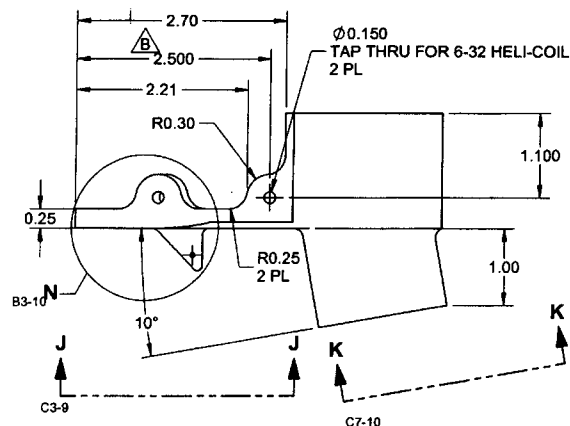
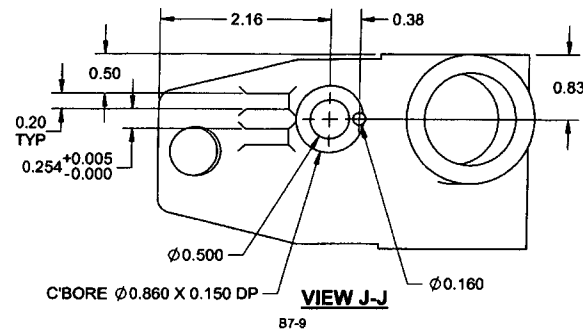
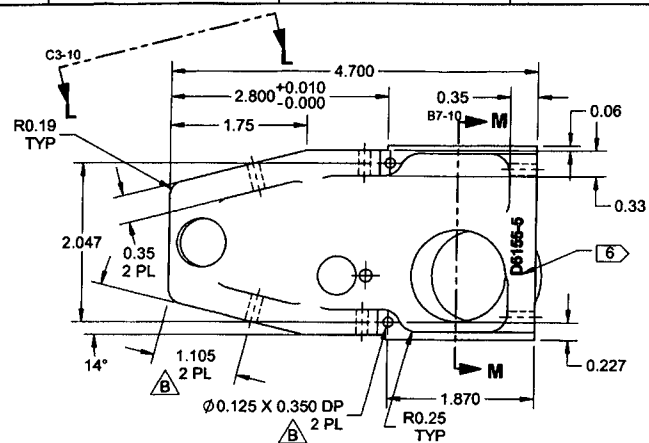
RELEASED
A.9.2015 JUL 02

- NOTES:**
 1) MATERIAL: N/A
 2) FINISH: N/A
 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 6) IDENTIFICATION: N/A
 7) WEIGHT: N/A

D5155-3 CO-PILOT COLLECTIVE HEAD (212)
DETAIL VIEWS

APPROVED	DESIGN	VS	DART AEROSPACE LTD	
	DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
	CHECKED	RF	DRAWING NO.	REV. B
	MFG. APPR.	JFS	D5155	SHEET 8 OF 14
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
	DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



NOTES:

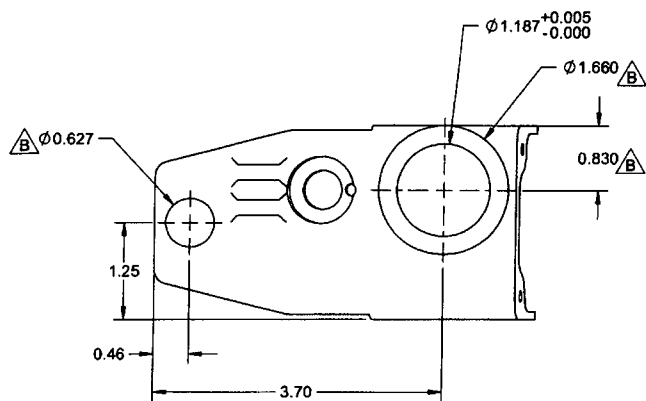
- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.45 lbs
- 8) UNDIMENSIONED FEATURES DEFINED BY D5155-5.SLDPRIT

D5155-5 CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)

RELEASED

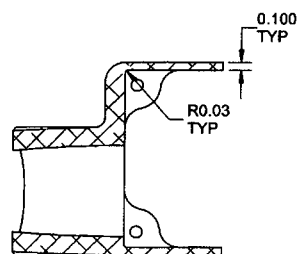
2015 JUL 02

APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	VS		
	CHECKED	RF	DRAWING NO.	REV. B
	MFG. APPR.	JFS	D5155	SHEET 9 OF 14
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE		15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



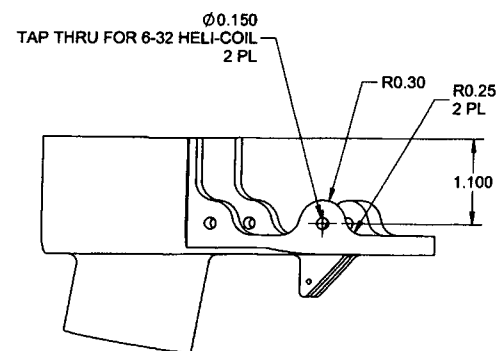
VIEW K-K

B6-9



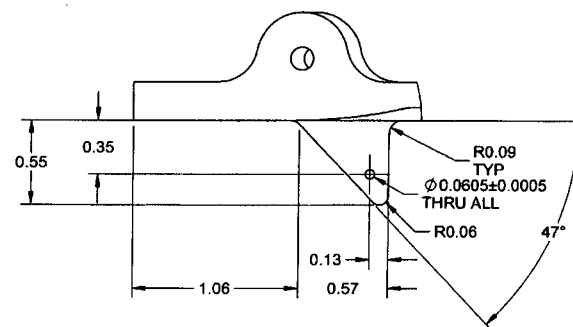
SECTION M-M

D6-9



VIEW L-L

D7-9



DETAIL N

B7-9

RELEASED

4.9. 2015 JUL 02

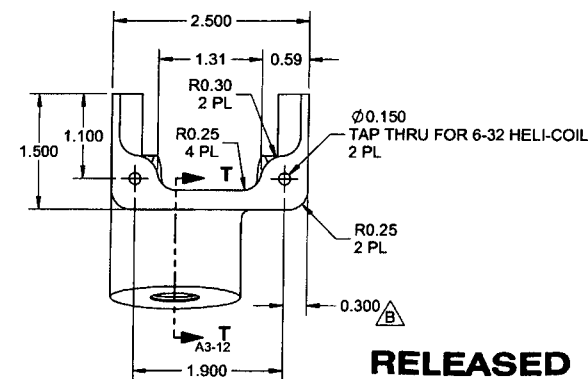
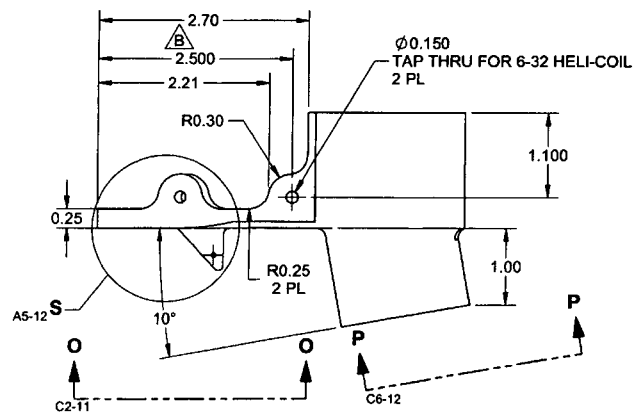
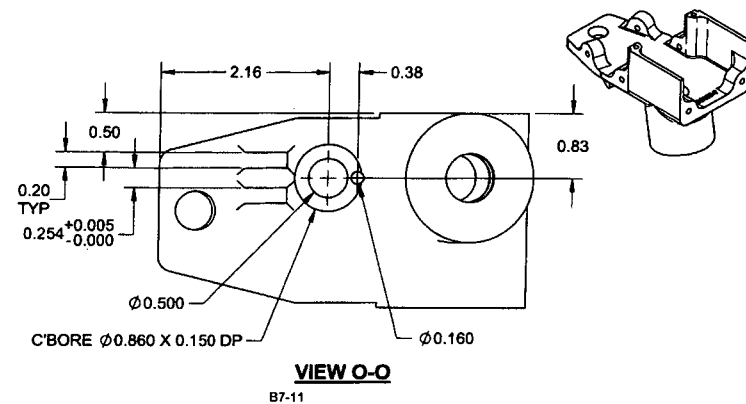
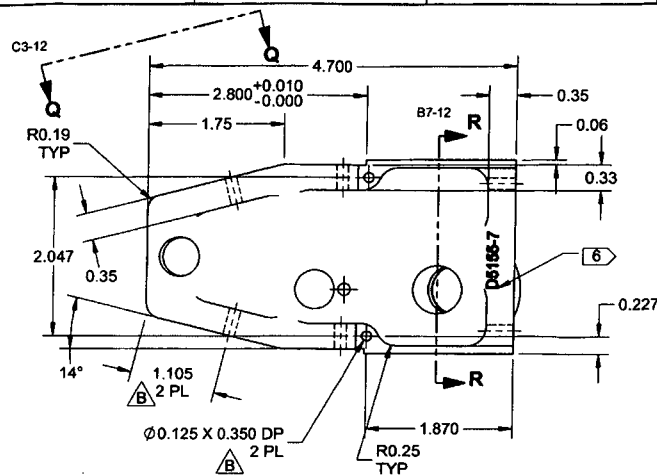
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

D5155-5 CO-PILOT COLLECTIVE HEAD (EAGLE SINGLE)
DETAIL VIEWS

APPROVED

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO. D5155	REV. B
MFG. APPR.	JFS	SHEET 10 OF 14	
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



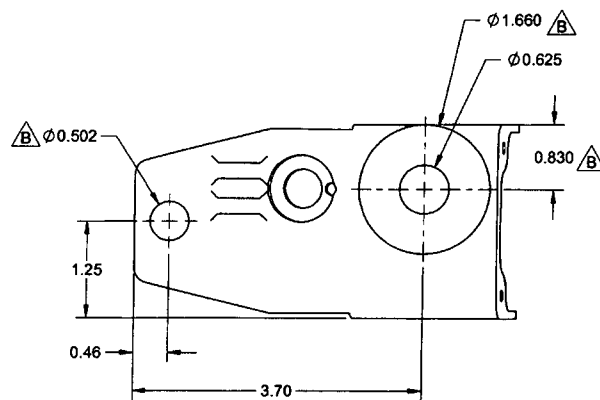
RELEASED
A.R. 2015 JUL 02

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.56 lbs
- 8) UNDIMENSIONED FEATURES DEFINED BY D5155-7.SLDPRT

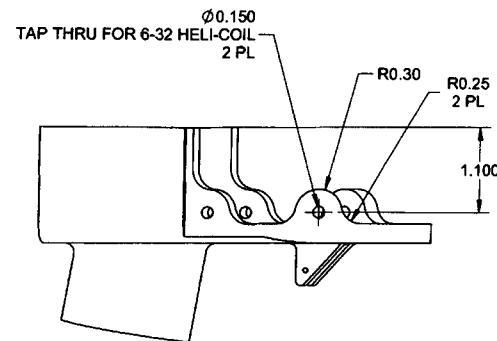
D5155-7 CO-PILOT COLLECTIVE HEAD (205)

APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	VS		
	CHECKED	RF	DRAWING NO.	REV. B
	MFG. APPR.	JFS	D5155	SHEET 11 OF 14
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE		15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



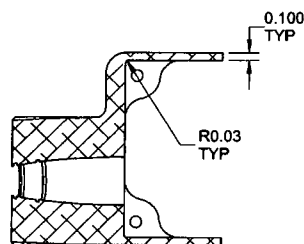
VIEW P-P

B5-11



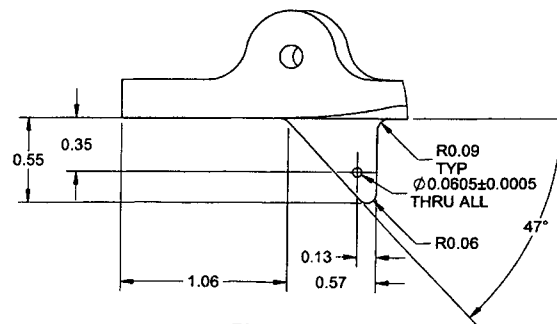
VIEW Q-Q

D7-11



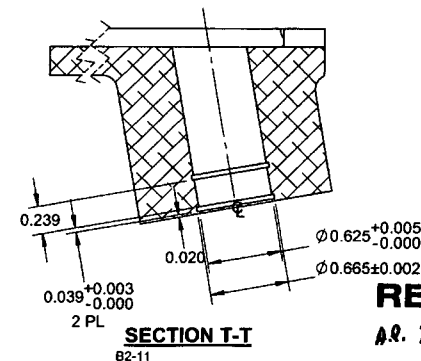
SECTION R-R

C6-11



DETAIL S

B6-11



SECTION T-T

B2-11

RELEASED

A.R. 2015 JUL 02

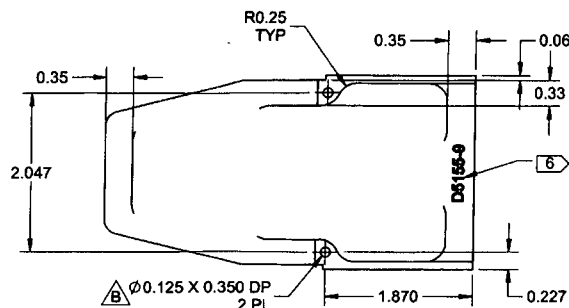
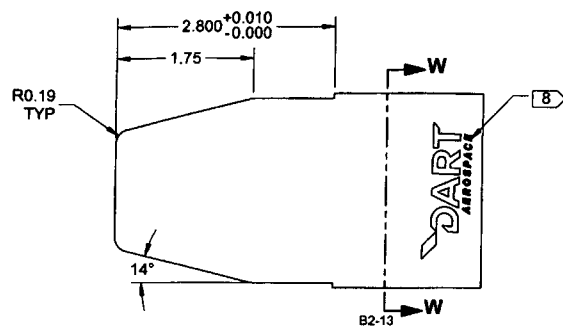
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

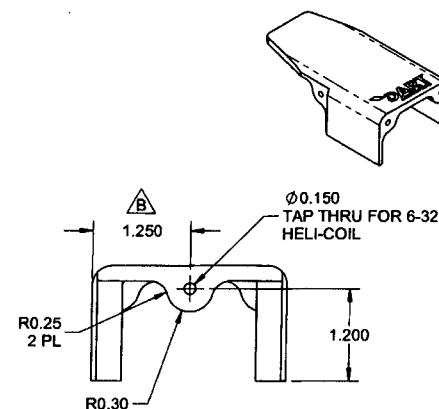
D5155-7 CO-PILOT COLLECTIVE HEAD (205)
DETAIL VIEWS

APPROVED

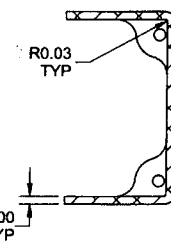
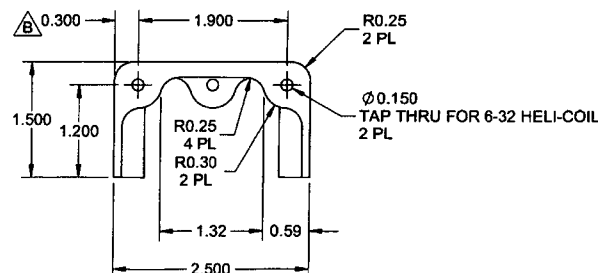
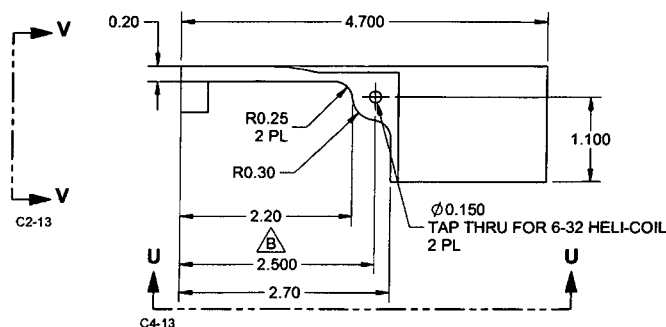
DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 12 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISSEMINATED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



VIEW U-U
B7-13



VIEW V-V
B8-13



SECTION W-W
D6-13

NOTES:

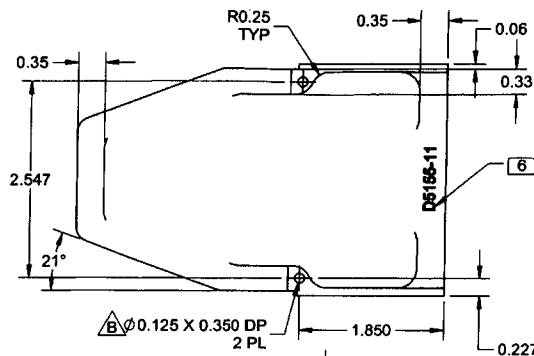
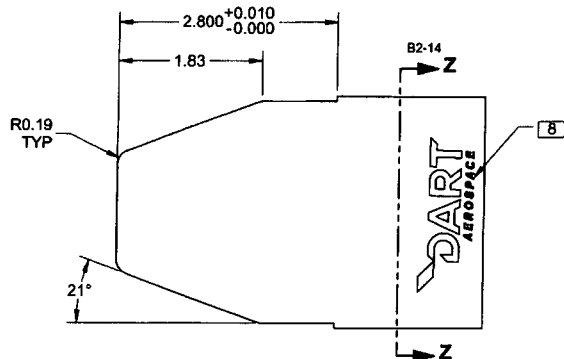
- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II
OR IIB CLASS 2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.31 lbs
- 8) ENGRAVE "DART" LOGO AS SHOWN 0.003-0.005 DP
- 9) UNDIMENSIONED FEATURES DEFINED BY D5155-9.SLDPRT

D5155-9 CO-PILOT COLLECTIVE HEAD (205)

RELEASED
4.8.2015 JUL 02

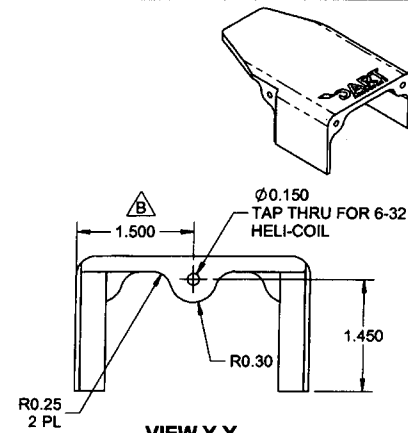
APPROVED

DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	VS		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5155	SHEET 13 OF 14
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE	15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	



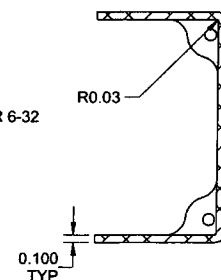
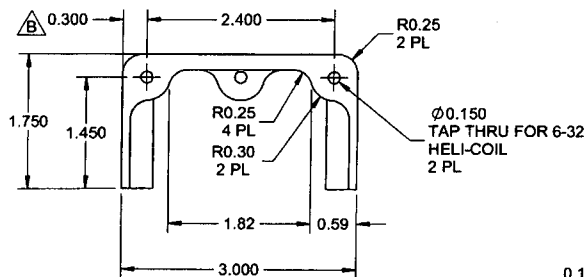
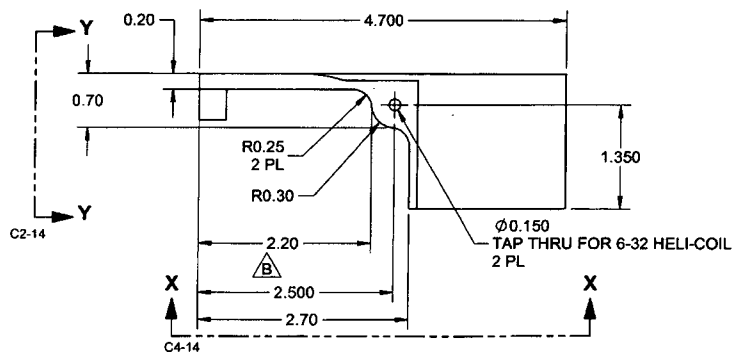
VIEW X-X

B6-14



VIEW Y-Y

B8-14



SECTION Z-Z

D6-14

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4118)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: ANODIZE BLACK PER MIL-A-8625F TYPE I OR IB OR IC OR II
OR IIB CLASS 2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3 IN THIS AREA TO MAX DEPTH
OF 0.010 WITH A MIN. TOOL RAD OF R0.010
- 7) WEIGHT: 0.36 lbs
- 8) ENGRAVE "DART" LOGO AS SHOWN 0.003-0.005 DP
- 8) UNDIMENSIONED FEATURES DEFINED BY D5155-11.SLDPRT

D5155-11 CO-PILOT COLLECTIVE HEAD (212)

RELEASED

A.R. 2015 JUL 02

APPROVED	DESIGN	VS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	VS		
	CHECKED	RF	DRAWING NO.	REV. B
	MFG. APPR.	JFS	D5155	SHEET 14 OF 14
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	CO-PILOT COLLECTIVE HEAD	NTS
DATE		15.05.21	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	